



Diesel Technology and Clean Fuel Forum

August 2005

About Sprague



- Founded in 1870 as a supplier of coal and whale oil
- Purchased assets of Rad Energy in 2001
- Wholly owned subsidiary of Axel Johnson Inc, a member of the Axel Johnson group of Stockholm, Sweden
- Distributes annually:
 - 2.5 billion gallons of petroleum products
 - 135 billion cubic feet of natural gas
 - Handles in excess of 3 million tons of bulk materials
- Owns and operates 20 storage terminals in the Northeast to support its operations
- Maintains throughputs or exchanges at over 100 additional facilities
- Largest supplier of Ultra Low Sulfur Diesel fuel in the U.S.
 - Supplying over 17,000 on and off-highway vehicles with ULSD throughout the Northeast

Sprague Products

Petroleum Products

- Diesel Fuel (500 ppm)
- Gasoline
- Heating Fuels
- Kerosene
- Natural Gas
- Aviation Fuel
- Marine Fuel

Clean Fuels

- Ultra Low Sulfur Diesel (typically 15ppm)
- Biofuels
 - Diesel Fuel
 - B100, B20 & sub B20 blends
 - ULSD
 - Heating Oil
- Ethanol



Sprague Terminal Map



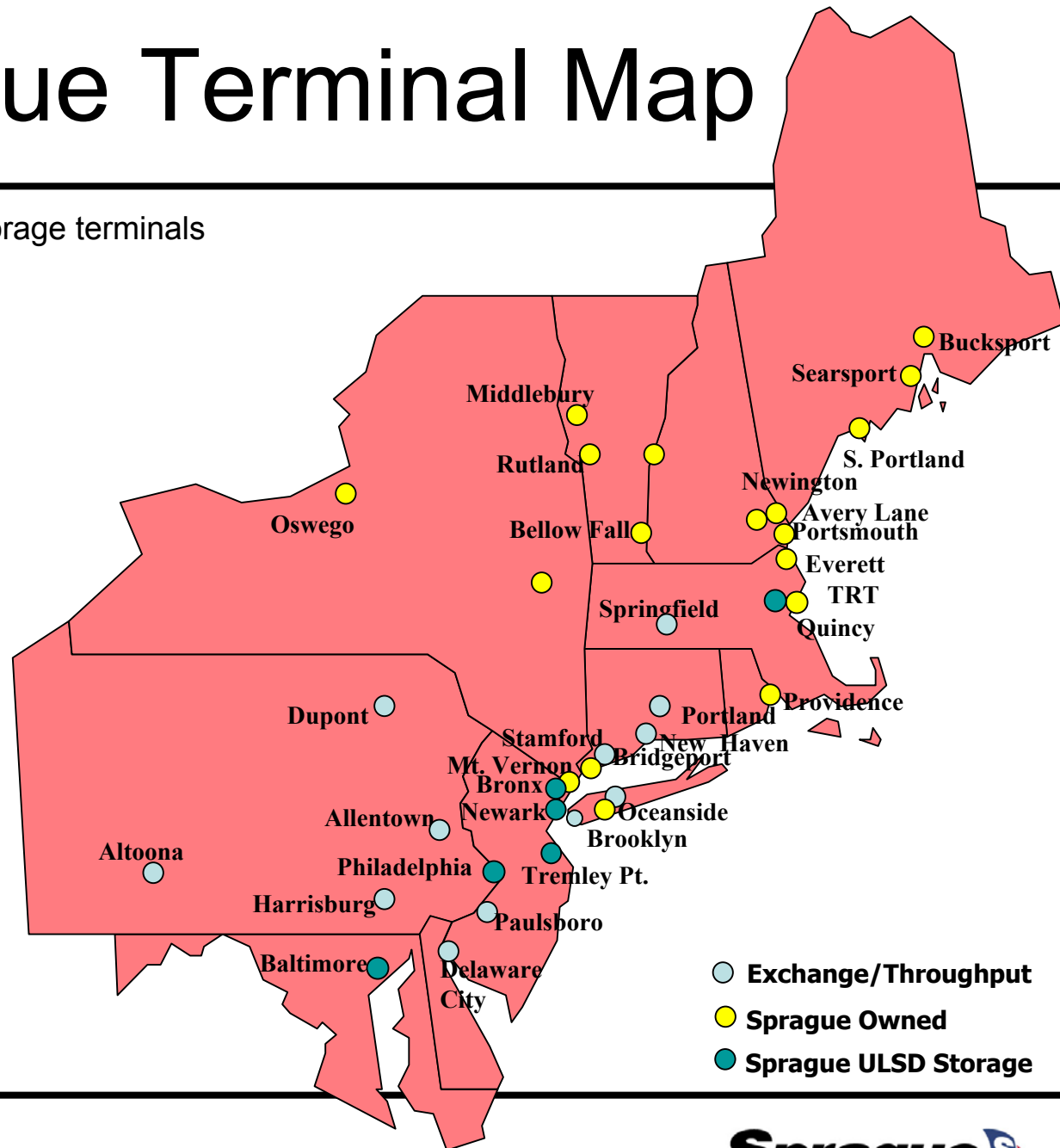
- 20 owned & operated storage terminals

- ULSD storage

- Newark, NJ
- Tremley Point, NJ
- Quincy, MA
- Bronx, NY
- Philadelphia, PA
- Baltimore, MD
- Danielson, CT

- Potential ULSD storage:

- Springfield, MA
- Albany, NY
- New Haven, CT
- East Hartford, CT
- Portland, ME
- Providence, RI
- Brooklyn, NY



- Exchange/Throughput
- Sprague Owned
- Sprague ULSD Storage

ULSD – The Road to 2006



- By 2006 the U.S. EPA standards for sulfur content in on-highway diesel will be reduced from 500 parts per million (ppm) to 15ppm at refiner level; 2006-2010 phase in for end user
- Refiners, engine manufacturers, marketers, retailers and end users have begun strategizing how this new mandate will affect their industries
- Throughout the supply chain there must be adaptations to accommodate this lower sulfur fuel

Low Sulfur Diesel Regulations



On-road
Diesel



Non-road
Diesel



Locomotive &
Marine Diesel



Home
Heating Oil



Drivers of ULSD

- Political and environmental pressures
- Health Concerns
 - High asthma rates in inner cities
- State Implementation Plans (SIP's) for Clean Air Act
- Proactive public relations
- Local, state and federal funding assistance
 - Special programs (e.g. EPA's Green School Bus Program)
 - Consent decrees (e.g. Boston Public Schools/Waste Management)



Other Drivers of ULSD

- Meets community and public interest group objectives
- Aligned with health organizations' initiatives
- Immediate emission reductions
- Lower overall cost option to reduce emissions
- Unlike other alternative fuel options, ULSD has no infrastructure or fleet changes/modifications
- Incentives available to offset incremental costs
- Meets/exceeds OEM fuel specifications



Students for No Air Pollution – NOW!



~ S.N.A.P NOW! GOALS ~

SCHOOL DISTRICTS SHOULD ADOPT POLICIES TO:

#1

HAVE IDLE-FREE SCHOOL ZONES

This means zero idling time for school buses, cars, delivery trucks and any vehicle on school property.

#2

REPLACE OLD, DIRTY BUSES WITH NEW CLEAN BUSES

Buses from model year 1995 and older are the dirtiest, and are too old to retrofit. School districts need to replace the dirtiest buses with clean ones.

#3

RETROFIT THE BUSES IN BETWEEN, AND USE ULSDF

The buses currently used that are from model years 1996 through 2004 can and should be retrofitted. School districts should also use Ultra Low Sulfur Diesel Fuel, which is the cleanest type of diesel fuel, having the least amount of sulfur and particulate matter.

#4

NOT USE OLD, DIRTY BUSES ANY MORE

School Districts should adopt policy stating they will not operate, own or contract with anyone who has a bus model year 1995 or older.

SNAP NOW!

Students for No Air Pollution - NOW!

Sponsored by the members of the Westchester Environmental Student Council

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Press release – March 2, 2005

SLAP NOW! BEGINS NOW

White Plains, NY, Wednesday, March 2, 2005: High school students from across Westchester County gathered today, in front of the County Michaelian Office Building to introduce SLAP NOW! (Students for Less Air Pollution NOW!). This initiative is sponsored by members of the Westchester Environmental Student Council (WESC), a program of the Federated Conservationists of Westchester County (FCWC).

The students are dedicating themselves to pressing for the reduction of air pollution in their region, starting at the most natural place for high school students; the schools. The program will focus on ending the unnecessary idling of all school buses, delivery trucks and passenger vehicles on school grounds, as well as working towards the retrofitting and retirement of older school buses, and finally the conversion to ultra low sulfur diesel fuel for school bus fleets throughout the county. This initiative was sparked by information students learned from The Healthy Air Action Plan for Westchester County, a report composed by the Healthy Air Task Force, commissioned by the County Legislature, and released last month (See www.alanys.org for this report, and a more recent E.P.A. backed report on the health dangers of diesel fuel, with local data).

Everyone has a vague sense of the environmental and health risks, which accompany air pollution, but recently, studies from the American Academy of Pediatrics as well as from Columbia University have confirmed the link between air pollution and children's health. Further, Westchester County is ranked in the 90th percentile for being one of the worst counties in the United States for fine particulate matter and for the abundance of nitrogen oxides in the air (Environmental Defense Scorecard). Students hope to confront this issue by informing their school communities of the potential risks which children, who are so vulnerable to air pollution, are being exposed to on their journey to and from school each day.

SLAP NOW! will begin in at least six Westchester school districts (Scarsdale, Mamaroneck, Katonah-Lewisboro, Hastings-on-Hudson and Harrison). Students will organize meetings with school officials to advocate for formal policies to prevent needless idling and to ensure that school buses are being modernized and eventually converted to using ultra low sulfur diesel fuel. The press conference marks the beginning of a student-driven campaign, which will hopefully spread to other school districts in Westchester, and on to other school districts in the state. Air pollution is a tangible problem, with known sources. Community support and continued press attention will speed the process towards reduction of particulate matter and improvement in the health of Westchester's children.

Recent Local Legislation

- City of New York Local Law 77
- City of New York Bills Passed May 2005
 - City vehicles
 - School buses
 - Solid waste/recyclable material handling & transportation
 - Site-seeing tourist buses
- County of Westchester
- Other States....on-road and off-road
- Multiple Agency Construction Project Initiatives
 - NYCT, NYS DOT, PANYNJ, CT DEP, NJ DEP



ULSD Applications



- Heavy, medium and light duty vehicles
- Transit
- Schools
- Municipal & private transportation fleets
- Construction
- Power generation
- Maritime
- Heating

Major Users of ULSD

New Haven



Newington Public Schools

New Haven



Boston Public Schools

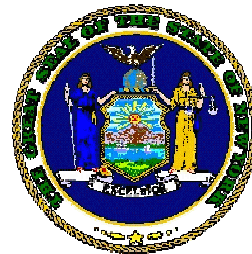


Yale University



Metro-North Railroad

NJ TRANSIT



DelDOT

SEPTA



The City of New York



KRAPF
BUS COMPANIES

Westchester
gov.com

KEYSPAN



NYC Department of Education

Joel I. Klein, Chancellor



New York City Transit



Con Edison
Consolidated Edison, Inc



Sprague

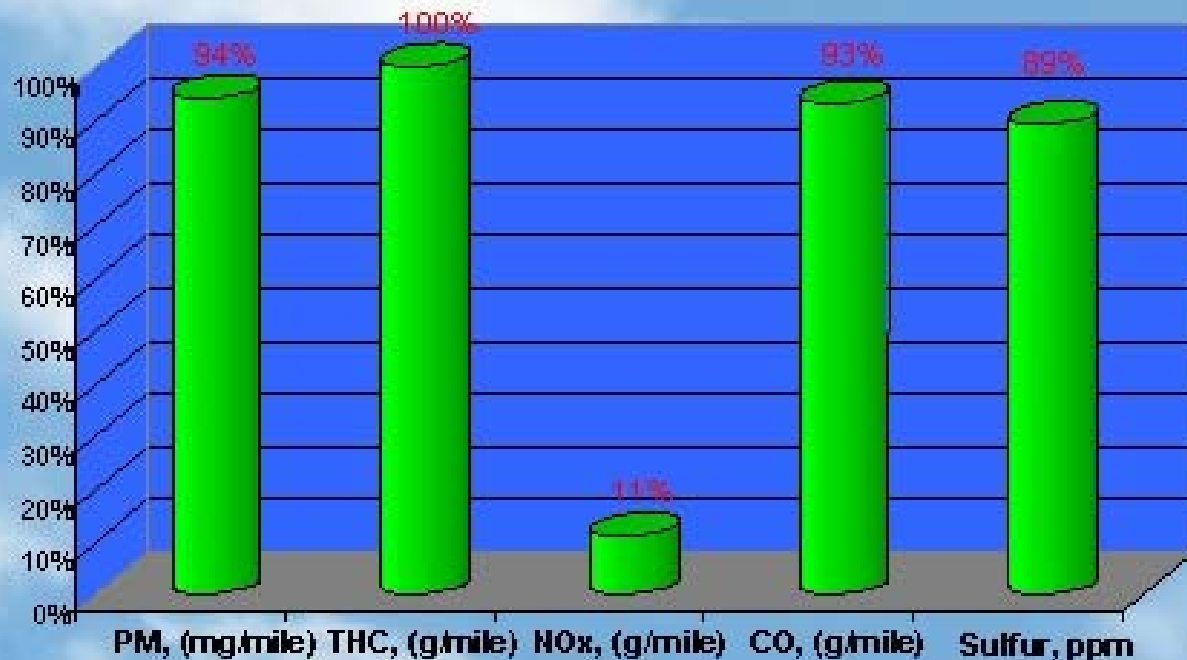
EPA Emission Reduction Forecast



Source: EPA

ULSD is a technology enabler
(ULSD + Aftertreatment = Clean Diesel)

Emission Reduction



ULSD Proven Emission Reductions*



	ULSD Base Fuel Only	ULSD with DPF Retrofit **
THC	76%	92%
CO	29%	94%
PM	23%	88%

Key:

PM = Particulate Matter

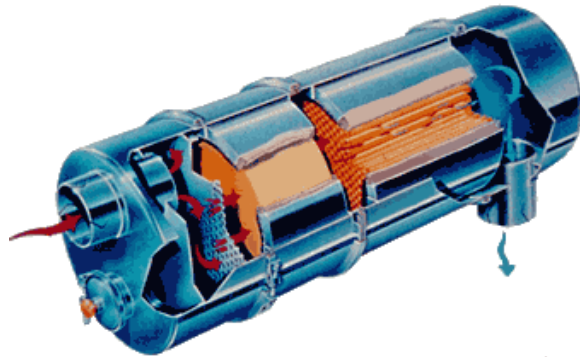
CO = Carbon Monoxide

THC = Total Hydrocarbons

* Society of Automotive Engineers, Inc. 2001-01-0511: "Performance and Durability Evaluation of Continuously Regenerating Particulate Filters on Diesel Powered Urban Buses at New York City Transit". Test performed in a Series 50 Detroit Diesel engine.

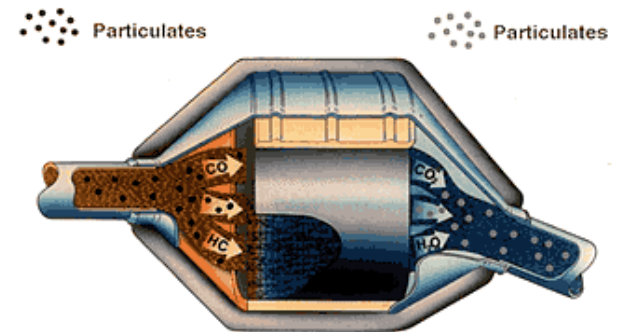
** 99% reduction in PM particle counts across all size ranges, including the smallest particles.

Emission Control Equipment



**Emission Control Equipment
reduces emissions of CO, HC and
particulates from heavy duty
vehicle exhaust by up to 90%.**

**Catalytic converters
containing the precious
metals platinum, palladium
and rhodium remove of the
pollutants in vehicle exhaust
gases.**



ULSD vs Conventional Diesel

“Handkerchief” Test



ULSD vs Conventional Diesel

Big Dig Job Site



Fleet User Experience with ULSD



Operability

- No measurable difference in vehicle performance
- Easy to switch from engine perspective
- May be used in older vehicles - no need to store two fuels

Fuel Performance

- Current refinery production of ULSD does not meet engine manufacturers lubricity specifications
- *Sprague* fuel meets/exceeds engine manufacturers' specifications and ASTM D6079 using lubricity additive
- Utilize a unique synthetic additive for all temperature variations

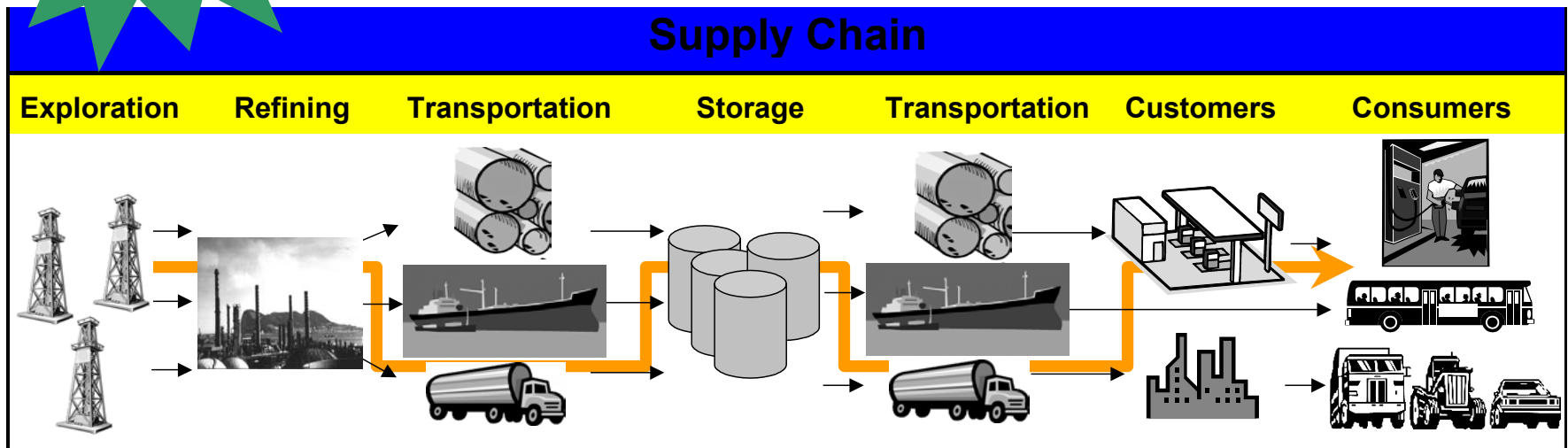
Supply & Distribution

- Although the use of this fuel is transparent to the fleet user, transporting fuel to end user with minimal or no contamination is a challenge
- Requires segregated product at fuel terminals, pipelines, racks and delivery trucks
- At this time cannot use pipeline for ULSD transportation

ULSD Considerations

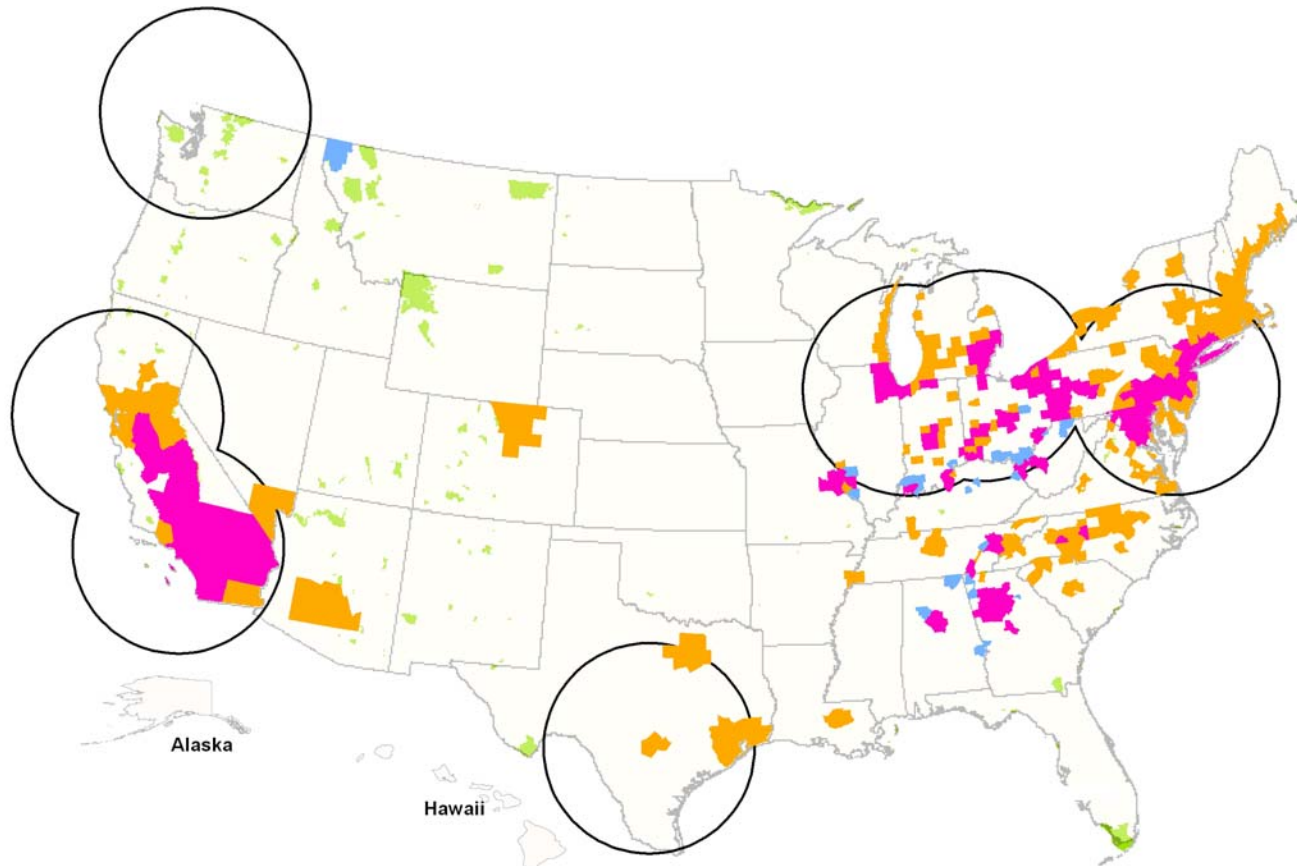
- Distribution/Infrastructure
 - Fungible vs. non-fungible system
 - Terminal storage availability (15ppm, 500ppm and/or <3000ppm)
 - Segregated transport deliveries
 - Retail/end user

ULSD



National Availability of ULSD

(Source: EPA Website)



- Federal Class I Areas (Visibility)
- Counties Exceeding PM2.5 NAAQS Only
- Counties Exceeding 8-hour Ozone NAAQS Only
- Counties Exceeding Both NAAQS

○ Rings represent a 250 mile radius from refineries which produce lower sulfur diesel

What Are Customers Looking for in a ULSD Supplier?



- Supply agreement which provides ULSD from a minimum of two refineries producing the product to ensure finished product availability
- To be actively engaged in the supply and delivery of ULSD or some other specialty product for a minimum of two years
- Multiple storage terminals for storage backup and delivery
- Minimum of thirty days inventory
- Segregated delivery transports with back-up segregated transports to ensure quality product delivery in case of transport downtime and emergency
- Quality Control Program to ensure product integrity and immediately provide on request test results for lubricity and other product specifications
- Product specifications for lubricity and calculation methodology
- Confirmation process to ensure product meets sulfur and lubricity standards

A Cleaner Future Starts Today



Contact Information



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